

VM1 TEST DHCP , DNS , NTP

DC= dc.providence.lan

```
[root@server01 ~]# hostname -f
server01.providence.lan
[root@server01 ~]# cat /etc/resolv.conf
# Generated by NetworkManager
search providence.lan
nameserver 192.168.10.10
nameserver fd17:625c:f037:2::3
[root@server01 ~]# nslookup dc1.providence.lan
Server:      192.168.10.10
Address:     192.168.10.10#53

Name:   dc1.providence.lan
Address: 192.168.10.15

[root@server01 ~]# nslookup mail.providence.lan
Server:      192.168.10.10
Address:     192.168.10.10#53

Name:   mail.providence.lan
Address: 192.168.10.30

[root@server01 ~]# nslookup mail.providence.lan
```

```
[root@server01 ~]# dig dc1.providence.lan

; <>> DiG 9.16.23-RH <>> dc1.providence.lan
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 11600
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 0884631aa9a20bba010000069973340ba3ba8febc992540 (good)
;; QUESTION SECTION:
;dc1.providence.lan.           IN      A

;; ANSWER SECTION:
dc1.providence.lan.      86400   IN      A      192.168.10.15

;; Query time: 0 msec
;; SERVER: 192.168.10.10#53(192.168.10.10)
;; WHEN: Thu Feb 19 16:58:56 CET 2026
;; MSG SIZE  rcvd: 91

[root@server01 ~]# |
```

```
[root@server01 ~]# dig _ldap._tcp.providence.lan SRV

; <>> DiG 9.16.23-RH <>> _ldap._tcp.providence.lan SRV
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 58917
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 426fcab5236dae1201000000699872c3d15169562b518d4d (good)
;
;; QUESTION SECTION:
_ldap._tcp.providence.lan.      IN      SRV

;; ANSWER SECTION:
_ldap._tcp.providence.lan. 86400 IN      SRV      0 100 389 dc1.providence.lan.

;; ADDITIONAL SECTION:
dc1.providence.lan.      86400   IN      A       192.168.10.15

;; Query time: 0 msec
;; SERVER: 192.168.10.10#53(192.168.10.10)
;; WHEN: Fri Feb 20 15:42:11 CET 2026
;; MSG SIZE  rcvd: 136

[root@server01 ~]# |
```

```
[root@server01 ~]# cat /var/lib/dhcpd/dhcpd.leases
# The format of this file is documented in the dhcpcd.leases(5) man
# This lease file was written by isc-dhcp-4.4.2b1

# authoring-byte-order entry is generated, DO NOT DELETE
authoring-byte-order little-endian;

lease 192.168.10.101 {
    starts 6 2026/01/31 05:32:58;
    ends 6 2026/01/31 05:34:58;
    tstp 6 2026/01/31 05:34:58;
    cltt 6 2026/01/31 05:32:58;
    binding state free;
    hardware ethernet 08:00:27:1b:da:33;
    uid "\001\010\000'\033\3323";
    set vendor-class-identifier = "MSFT 5.0";
    client-hostname "WIN-DCB1UIV8T06";
}
lease 192.168.10.102 {
    starts 6 2026/01/31 05:59:07;
    ends 6 2026/01/31 06:01:07;
    tstp 6 2026/01/31 06:01:07;
    cltt 6 2026/01/31 05:59:07;
    binding state free;
    hardware ethernet 08:00:27:44:e0:dd;
    uid "\001\010\000'D\340\335";
    client-hostname "sever03";
}
lease 192.168.10.133 {
```

Statuts des serviceS sur le server01

SERVICE DHCP

```
[root@server01 ~]# systemctl status dhcpd
● dhcpd.service - DHCPv4 Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; enabled)
   Active: active (running) since Thu 2026-02-19 14:58:20 CET
     Docs: man:dhcpd(8)
           man:dhcpd.conf(5)
   Main PID: 801 (dhcpd)
      Status: "Dispatching packets..."
        Tasks: 1 (limit: 10654)
       Memory: 7.8M (peak: 8.0M)
         CPU: 67ms
      CGroup: /system.slice/dhcpd.service
              └─801 /usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf

févr. 19 14:58:20 server01.providence.lan dhcpd[801]: 
févr. 19 14:58:20 server01.providence.lan dhcpd[801]: No subnet
févr. 19 14:58:20 server01.providence.lan dhcpd[801]: ** Ignori
févr. 19 14:58:20 server01.providence.lan dhcpd[801]:     you wa
févr. 19 14:58:20 server01.providence.lan dhcpd[801]:     in you
févr. 19 14:58:20 server01.providence.lan dhcpd[801]:     to whi
févr. 19 14:58:20 server01.providence.lan dhcpd[801]: 
févr. 19 14:58:20 server01.providence.lan dhcpd[801]: Sending o
févr. 19 14:58:20 server01.providence.lan dhcpd[801]: Server st
févr. 19 14:58:20 server01.providence.lan systemd[1]: Started D
lines 1-23/23 (END)
```

SERVICE DNS

```
[root@server01 ~]# systemctl status named
● named.service - Berkeley Internet Name Domain (DNS)
  Loaded: loaded (/usr/lib/systemd/system/named.service; enabled)
  Active: active (running) since Thu 2026-02-19 14:58:19 CET
    Process: 771 ExecStartPre=/bin/bash -c if [ ! "$DISABLE_ZONECHECK" ] ; then /usr/sbin/named -c ${NAMEDCONF} &
    Process: 788 ExecStart=/usr/sbin/named -u named -c ${NAMEDCONF} &
   Main PID: 792 (named)
     Tasks: 6 (limit: 10654)
    Memory: 38.7M (peak: 40.4M)
      CPU: 16.304s
     CGroup: /system.slice/named.service
             └─792 /usr/sbin/named -u named -c /etc/named.conf

févr. 19 16:27:47 server01.providence.lan named[792]: client @0>
févr. 19 16:27:47 server01.providence.lan named[792]: managed-kickstart
[lines 1-22/22 (END)]
```

NTP

```
[root@server01 ~]# vi /etc/chrony.conf
[root@server01 ~]# systemctl restart chronyd
[root@server01 ~]# systemctl status chronyd
● chronyd.service - NTP client/server
  Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled)
  Active: active (running) since Thu 2026-02-19 17:33:59 CET
    Docs: man:chronyd(8)
           man:chrony.conf(5)
    Process: 1517 ExecStart=/usr/sbin/chronyd $OPTIONS (code=exited, pid=1519)
   Main PID: 1519 (chronyd)
     Tasks: 1 (limit: 10654)
    Memory: 968.0K (peak: 1.4M)
      CPU: 41ms
     CGroup: /system.slice/chronyd.service
             └─1519 /usr/sbin/chronyd -F 2

févr. 19 17:33:59 server01.providence.lan systemd[1]: Starting chronyd...
févr. 19 17:33:59 server01.providence.lan chronyd[1519]: chronyd starting
févr. 19 17:33:59 server01.providence.lan chronyd[1519]: Loaded
févr. 19 17:33:59 server01.providence.lan chronyd[1519]: Using
févr. 19 17:33:59 server01.providence.lan chronyd[1519]: Frequency
févr. 19 17:33:59 server01.providence.lan chronyd[1519]: Loaded
févr. 19 17:33:59 server01.providence.lan systemd[1]: Started chronyd.
[lines 1-20/20 (END)]
```

```
[root@server01 ~]# chronyc sources -v

  .-- Source mode '^' = server, '=' = peer, '#' = local
  / .- Source state '*' = current best, '+' = combined,
  combined,
| /           'x' = may be in error, '~' = too variable
  unusable.
||           .- x>
y ] +/- zzzz
||           Reachability register (octal) -. | x>
usted offset,
||           Log2(Polling interval) --. | | y>
sured offset,
||           \ | | z>
imated error.
||           | | \
MS Name/IP address      Stratum Poll Reach LastRx Las
=====
=====
^* dc1.providence.lan          4   6    37    24 +263
2ms] +/- 2212ms
[root@server01 ~]# |
```

```
/as] /, 2212ms
[root@server01 ~]# sudo chronyc tracking
Reference ID      : C0A80A0F (dc1.providence.lan)
Stratum          : 5
Ref time (UTC)   : Thu Feb 19 16:48:08 2026
System time      : 0.000000116 seconds slow of NTP time
Last offset      : +0.000060814 seconds
RMS offset       : 0.000060814 seconds
Frequency        : 272.287 ppm slow
Residual freq   : +28.513 ppm
Skew             : 40.931 ppm
Root delay       : 1.729236841 seconds
Root dispersion  : 1.351509571 seconds
Update interval  : 2.0 seconds
Leap status      : Normal
[root@server01 ~]# |
```

=====VM2 ACTIVE DIRECTORY VALIDATION=====

Domaine *Get-ADDomain

*Get-ADForest

```
192.168.10.15 - Connexion Bureau à distance
Résultat de la collecte des données pour le résumé de la réPLICATION :
Cette opération peut prendre un certain temps :
    ...

DSA source      différence max    nb échecs %  erreur
DSA de destination      différence max    nb échecs %  erreur

PS C:\Users\Administrateur.WIN-DCB1UIV8T06> Get-ADDomain

AllowedDNSSuffixes          : {}
ChildDomains                 : {}
ComputersContainer           : CN=Computers,DC=providence,DC=lan
DeletedObjectsContainer     : CN=Deleted Objects,DC=providence,DC=lan
DistinguishedName           : DC=providence,DC=lan
DNSRoot                      : providence.lan
DomainControllersContainer   : OU=Domain Controllers,DC=providence,DC=lan
DomainMode                   : Windows2016Domain
DomainSID                    : S-1-5-21-628119637-2903109601-101615772
ForeignSecurityPrincipalsContainer : CN=ForeignSecurityPrincipals,DC=providence,DC=lan
Forest                        : providence.lan
InfrastructureMaster          : DC1.providence.lan
LastLogonReplicationInterval : {CN={31B2F340-016D-11D2-945F-00C04FB984F9},CN=Po
                             : lan}
LinkedGroupPolicyObjects      : CN=LostAndFound,DC=providence,DC=lan
LostAndFoundContainer         : providence
ManagedBy                     : PROVIDENCE
Name                          : domainDNS
NetBIOSName                  : 3a50f1e7-d77e-4cf9-95ec-c4273f6e5f8c
ParentDomain                  : DC1.providence.lan
PDCEmulator                  : True
PublicKeyRequiredPasswordRolling : CN=NTDS Quotas,DC=providence,DC=lan
QuotasContainer               : {}
ReadonlyReplicaDirectoryServers : {DC1.providence.lan}
ReplicaDirectoryServers       : DC1.providence.lan
RIDMaster                     : {CN=Configuration,DC=providence,DC=lan}
SubordinateReferences         : CN=System,DC=providence,DC=lan
SystemsContainer               : CN=Users,DC=providence,DC=lan

PS C:\Users\Administrateur.WIN-DCB1UIV8T06>
```



```
PS C:\Users\Administrateur.WIN-DCB1UIV8T06> Get-ADForest

ApplicationPartitions : {}
CrossForestReferences : {}
DomainNamingMaster    : DC1.providence.lan
Domains              : {providence.lan}
ForestMode            : Windows2016Forest
GlobalCatalogs        : {DC1.providence.lan}
Name                 : providence.lan
PartitionsContainer  : CN=Partitions,CN=Configuration,DC=providence,DC=lan
RootDomain            : providence.lan
SchemaMaster          : DC1.providence.lan
Sites                : {Default-First-Site-Name}
SPNSuffixes          : {}
UPNSuffixes          : {}

PS C:\Users\Administrateur.WIN-DCB1UIV8T06>
```

SANTE DU CONTROLLER DE DOMAIN

```

PS C:\Users\Administrateur.WIN-DCB1UIV8T06> Get-ADDomainController

ComputerObjectDN      : CN=DC1,OU=Domain Controllers,DC=providence,DC=lan
DefaultPartition       : DC=providence,DC=lan
Domain                : providence.lan
Enabled               : True
Forest                : providence.lan
HostName              : DC1.providence.lan
InvocationId          : 52aa349a-199d-42b8-acae-7f91cda8c30b
IPv4Address           : 192.168.10.15
IPv6Address           :
IsGlobalCatalog       :
IsReadOnly            : False
LdapPort              : 389
Name                  : DC1
NTDSSettingsObjectDN : CN=NTDS Settings,CN=DC1,CN=Servers,CN=Default-First-Site=providence,DC=lan
OperatingSystem        :
OperatingSystemHotfix  :
OperatingSystemServicePack :
OperatingSystemVersion : 10.0 (14393)
OperationMasterRoles   : {SchemaMaster, DomainNamingMaster, PDCEmulator, RIDMaster}
Partitions             : {CN=Schema,CN=Configuration,DC=providence,DC=lan, CN=Config,DC=providence,DC=lan}
ServerObjectDN         : CN=DC1,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Root
ServerObjectGuid       : 05ac48e7-5eda-44bb-a9d4-a20fdd35edfd
Site                 : Default-First-Site-Name
SslPort               : 636

PS C:\Users\Administrateur.WIN-DCB1UIV8T06>

```

```

..... Le test intersite
de providence.lan a réussi
$ c:\Users\Administrateur.WIN-DCB1UIV8T06> dcdiag
Diagnostic du serveur d'annuaire

Exécution de l'installation initiale :
  Tentative de recherche de serveur associé...
    Serveur associé : DC1
    * Forêt AD identifiée.
  Collecte des informations initiales terminée.

Exécution des tests initiaux nécessaires

  Test du serveur : Default-First-Site-Name\DC1
    Démarrage du test : Connectivity
      ..... Le test Connectivity
      de DC1 a réussi

Exécution des tests principaux

  Test du serveur : Default-First-Site-Name\DC1
    Démarrage du test : Advertising
      ..... Le test Advertising
      de DC1 a réussi
    Démarrage du test : FrsEvent
      ..... Le test FrsEvent
      de DC1 a réussi
    Démarrage du test : DFSREvent
      Erreurs ou avertissements détectés au cours des dernières 24 heures
      liés à l'échec de la réPLICATION SYSVOL peuvent provoquer des problèmes
      ..... Le test DFSREvent
      de DC1 a échoué
    Démarrage du test : SysvolCheck
      ..... Le test SysvolCheck
      de DC1 a réussi
    Démarrage du test : KccEvent
      ..... Le test KccEvent
      de DC1 a réussi
    Démarrage du test : KnowsOfRoleHolders

```

====→ KERBEROS et DNS SRV

Klist

192.168.10.15 - Connexion Bureau à distance

```
PS C:\Users\Administrateur.WIN-DCB1UIV8T06> nslookup dc1.providence.lan 192.168.10.10
Serveur : server01.providence.lan
Address: 192.168.10.10
Nom : dc1.providence.lan
Address: 192.168.10.15

PS C:\Users\Administrateur.WIN-DCB1UIV8T06> nslookup www.providence.lan 192.168.10.10
Serveur : server01.providence.lan
Address: 192.168.10.10
Nom : www.providence.lan
Address: 192.168.10.50

PS C:\Users\Administrateur.WIN-DCB1UIV8T06> nslookup 192.168.10.50
Serveur : server01.providence.lan
Address: 192.168.10.10
Nom : webapp.providence.lan
Address: 192.168.10.50

PS C:\Users\Administrateur.WIN-DCB1UIV8T06> nslookup -type=SRV _ldap._tcp.providence.lan 192.168.10.10
>>
Serveur : server01.providence.lan
Address: 192.168.10.10
_ldap._tcp.providence.lan      SRV service location:
priority      = 0
weight        = 100
port          = 389
svr hostname  = dc1.providence.lan
dc1.providence.lan      internet address = 192.168.10.15
PS C:\Users\Administrateur.WIN-DCB1UIV8T06> klist
>>
LogonId est 0x0x2c15ce

Tickets mis en cache : (0)
PS C:\Users\Administrateur.WIN-DCB1UIV8T06> w32tm /query /status
Indicateur de dérive : 0(Aucun avertissement)
Couche : 1 (Référence principale, synchronisée par l'horloge du réveil)
Précision : -6 (15.625ms par battement)
Délai de racine : 0.00000000s
Dispersion de racine : 10.00000000s
ID de référence : 0x4C4F434C (Nom de la source : "LOCL")
Heure de la dernière synchronisation réussie : 07/02/2026 01:58:06
Source : Local CMOS Clock
Intervalle d'interrogation : 6 (64s)

PS C:\Users\Administrateur.WIN-DCB1UIV8T06>
```

===== VM 3 AD Integration validation=====

Domaine

```
[root@mail ~]# realm join providence.lan -U Administrateur
realm: Already joined to this domain
[root@mail ~]# realm list
providence.lan
  type: kerberos
  realm-name: PROVIDENCE.LAN
  domain-name: providence.lan
  configured: kerberos-member
  server-software: active-directory
  client-software: sssd
  required-package: oddjob
  required-package: oddjob-mkhomedir
  required-package: sssd
  required-package: adcli
  required-package: samba-common-tools
  login-formats: %U@providence.lan
  login-policy: allow-realm-logins
[root@mail ~]#
```



```
[root@localhost ~]# realm discover providence.lan
providence.lan
  type: kerberos
  realm-name: PROVIDENCE.LAN
  domain-name: providence.lan
  configured: no
  server-software: active-directory
  client-software: sssd
  required-package: oddjob
  required-package: oddjob-mkhomedir
  required-package: sssd
  required-package: adcli
  required-package: samba-common-tools
[root@localhost ~]#
```

Kerberos

```

root@server07:/home/provi# sudo vi /etc/krb5.conf
root@server07:/home/provi# sudo vi /etc/krb5.conf
root@server07:/home/provi# kinit administrateur@PROVIDENCE.L
AN
Password for administrateur@PROVIDENCE.LAN:
Warning: encryption type arcfour-hmac used for authentication
is deprecated and will be disabled
root@server07:/home/provi# klist
Ticket cache: FILE:/tmp/krb5cc_0
Default principal: administrateur@PROVIDENCE.LAN

Valid starting     Expires            Service principal
02/08/26 21:44:41  02/09/26 07:44:41  krbtgt/PROVIDENCE.LAN@PROVIDENCE.LAN
                           renew until 02/09/26 21:44:20
root@server07:/home/provi# |

```

=====VM4 Mail validation=====

```

[root@mail ~]# systemctl status dovecot
● dovecot.service - Dovecot IMAP/POP3 email server
   Loaded: loaded (/usr/lib/systemd/system/dovecot.service; enabled; vendor preset: disabled)
   Active: active (running) since ven. 2026-02-20 19:16:11 CET;
             37s ago
     Docs: man:dovecot(1)
           http://wiki2.dovecot.org/
   Process: 2277 ExecStop=/usr/bin/doveadm stop (code=exited, status=0/SUCCESS)
   Process: 2290 ExecStart=/usr/sbin/dovecot (code=exited, status=0/SUCCESS)
   Process: 2288 ExecStartPre=/usr/sbin/portrelease dovecot (code=exited, status=0/SUCCESS)
   Process: 2282 ExecStartPre=/usr/libexec/dovecot/prestartscript (code=exited, status=0/SUCCESS)
 Main PID: 2292 (dovecot)
    CGroup: /system.slice/dovecot.service
              └─2292 /usr/sbin/dovecot
                  ├─2293 dovecot/anvil
                  ├─2294 dovecot/log
                  └─2296 dovecot/config

févr. 20 19:16:10 mail.providence.lan systemd[1]: Starting D...
févr. 20 19:16:11 mail.providence.lan systemd[1]: Can't open...

```

```
[root@mail ~]# systemctl status postfix
● postfix.service - Postfix Mail Transport Agent
  Loaded: loaded (/usr/lib/systemd/system/postfix.service; enabled; vendor preset: disabled)
    Active: active (running) since ven. 2026-02-20 19:16:34 CET;
  1min 53s ago
      Process: 2303 ExecStop=/usr/sbin/postfix stop (code=exited, status=0/SUCCESS)
      Process: 2316 ExecStart=/usr/sbin/postfix start (code=exited, status=0/SUCCESS)
      Process: 2314 ExecStartPre=/usr/libexec/postfix/chroot-update (code=exited, status=0/SUCCESS)
      Process: 2312 ExecStartPre=/usr/libexec/postfix/aliasesdb (code=exited, status=0/SUCCESS)
   Main PID: 2388 (master)
     CGroup: /system.slice/postfix.service
             └─2388 /usr/libexec/postfix/master -w
                 ├ 2389 pickup -l -t unix -u
                 ├ 2390 qmgr -l -t unix -u
                 └─2391 smtp -l -t unix -u

févr. 20 19:16:32 mail.providence.lan systemd[1]: Stopped Po...
févr. 20 19:16:32 mail.providence.lan systemd[1]: Starting P...
févr. 20 19:16:34 mail.providence.lan postfix/postfix-script[2386]: ...
févr. 20 19:16:34 mail.providence.lan postfix/master[2388]: ...
févr. 20 19:16:34 mail.providence.lan systemd[1]: Started Po...
Hint: Some lines were ellipsized, use -l to show in full.
[root@mail ~]# |
```

Zabbix agent

```
● zabbix-agent.service - Zabbix Agent
   Loaded: loaded (/usr/lib/systemd/system/zabbix-agent.service)
   Active: active (running) since Sun 2026-02-22 03:43:49 CET
     Main PID: 15318 (zabbix_agentd)
        Tasks: 6 (limit: 10654)
      Memory: 4.1M (peak: 4.5M)
        CPU: 111ms
      CGroup: /system.slice/zabbix-agent.service
              ├─15318 /usr/sbin/zabbix_agentd -c /etc/zabbix/zab...
              ├─15319 "/usr/sbin/zabbix_agentd: collector [idle >
              ├─15320 "/usr/sbin/zabbix_agentd: listener #1 [wai...
              ├─15321 "/usr/sbin/zabbix_agentd: listener #2 [wai...
              ├─15322 "/usr/sbin/zabbix_agentd: listener #3 [wai...
              └─15323 "/usr/sbin/zabbix_agentd: active checks #1>

févr. 22 03:43:49 server01.providence.lan systemd[1]: Starting >
févr. 22 03:43:49 server01.providence.lan systemd[1]: Started Z>
lines 1-17/17 (END)
```

ZABBIX Hosts

server07

Host groups: type here to search | Select

Status: Any | Enabled | Disabled

Templates: type here to search | Select

Monitored by: Any | Server | Proxy | Proxy group

Name:

DNS:

IP:

Port:

Tags: And/Or | Or

Add

tag: Contains value: Rem

Apply | Reset

	Name	Items	Triggers	Graphs	Discovery	Web	Interface	Proxy	Templates	Status	Availability	Agent encry.
<input type="checkbox"/>	GGP	Items 34	Triggers 13	Graphs 5	Discovery 4	Web			Windows by Zabbix agent active	Enabled		None
<input type="checkbox"/>	server01.providence.lan	Items 43	Triggers 15	Graphs 8	Discovery 3	Web			Linux by Zabbix agent active	Enabled		None
<input type="checkbox"/>	server07.providence.lan	Items 43	Triggers 15	Graphs 8	Discovery 3	Web			Linux by Zabbix agent active	Enabled		None
<input type="checkbox"/>	Zabbix server	Items 162	Triggers 87	Graphs 17	Discovery 6	Web	127.0.0.1:10050		Linux by Zabbix agent, Zabbix server health	Enabled		None

Disp